

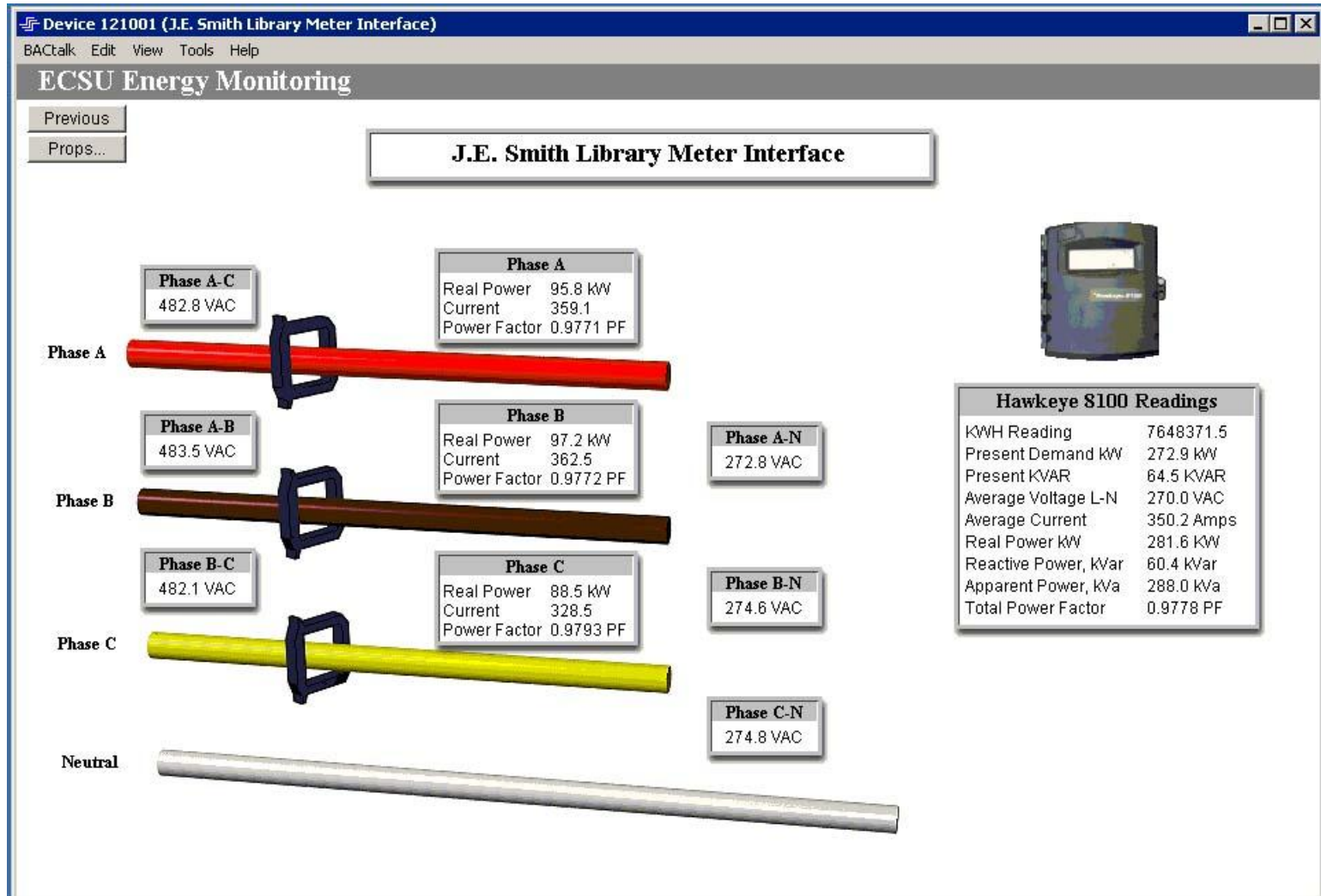
Eastern Connecticut State University

Electrical Metering System

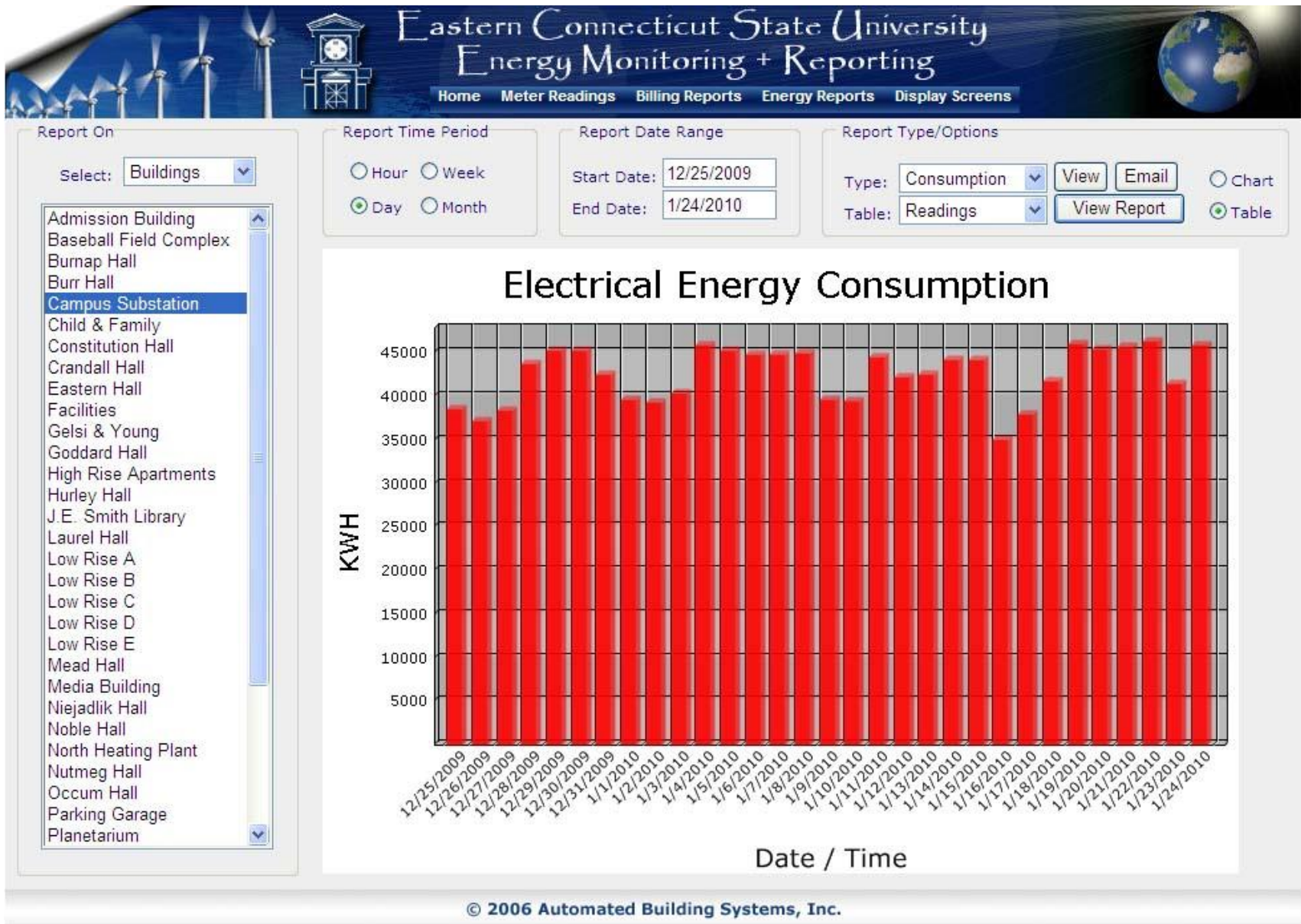
Goals

- Track Electrical Usage
- Compare Buildings
- Invest in Conservation wisely
- Automate Load Shedding
- Educate the community

Data we Gather



One Building/Meter



Several Buildings Together

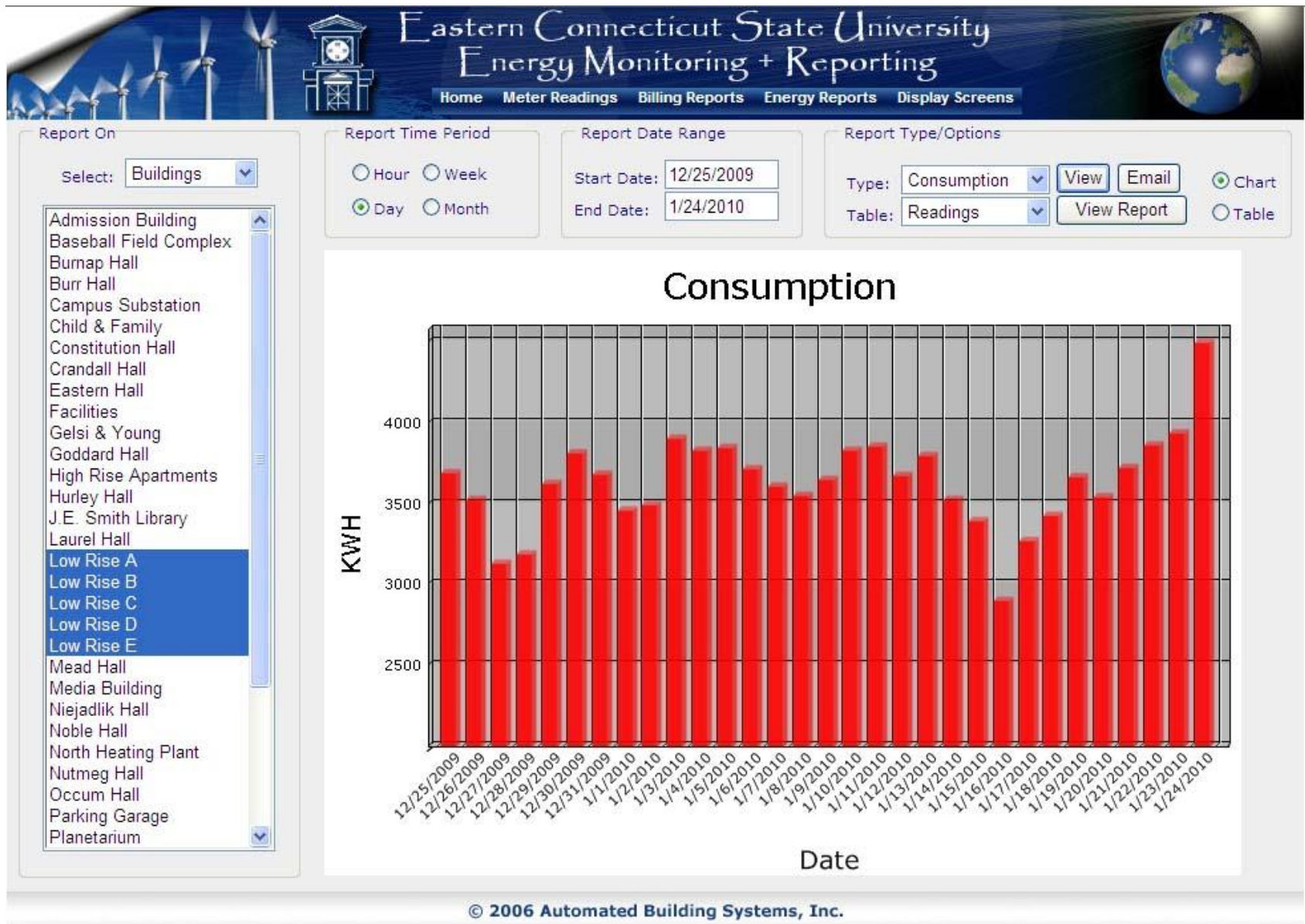
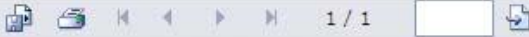


Table Format

	
Eastern Connecticut State University	
Aggregate Electrical Energy Consumption	
Buildings: Campus Substation	Start Date: 12/25/2009 End Date: 1/24/2010
<u>Date / Time</u>	<u>Consumption (KWH)</u>
12/25/2009 00:00:00	38,647
12/26/2009 00:00:00	37,338
12/27/2009 00:00:00	38,489
12/28/2009 00:00:00	43,844
12/29/2009 00:00:00	45,420
12/30/2009 00:00:00	45,311
12/31/2009 00:00:00	42,689
1/1/2010 00:00:00	39,702
1/2/2010 00:00:00	39,351
1/3/2010 00:00:00	40,483
1/4/2010 00:00:00	45,990
1/5/2010 00:00:00	45,302
1/6/2010 00:00:00	44,938
1/7/2010 00:00:00	44,874
1/8/2010 00:00:00	45,058
1/9/2010 00:00:00	39,734
1/10/2010 00:00:00	39,576
1/11/2010 00:00:00	44,578
1/12/2010 00:00:00	42,333
1/13/2010 00:00:00	42,548
1/14/2010 00:00:00	44,336
1/15/2010 00:00:00	44,251
1/16/2010 00:00:00	35,164
1/17/2010 00:00:00	38,100
1/18/2010 00:00:00	41,919
1/19/2010 00:00:00	46,095
1/20/2010 00:00:00	45,550
1/21/2010 00:00:00	45,804
1/22/2010 00:00:00	46,438
1/23/2010 00:00:00	41,516
1/24/2010 00:00:00	45,949
Total Consumption	1,321,325

Our Campus “Electric Bill”

Eastern Connecticut State University
Energy Monitoring + Reporting

Home Meter Readings Billing Reports Energy Reports Display Screens

Building: All Ending Bill Period: 10/30/2009 Refresh Data Create New Bill Report Individual Bldgs Report Compare Bldgs

Building	Area (SqFt)	Start Date	End Date	Days	Usage (KWH)	Rate (\$)	Amount	Cost Per SqFt	Htg ° Days	Clg ° Days
Admission Building	3600	10/1/2009	10/30/2009	30	4303	\$0.1596	\$686.58	\$0.1907	145	37
Baseball Field Complex	10000	10/1/2009	10/30/2009	30	0	\$0.1596	\$0.00	\$0.0000	145	37
Burnap Hall	21600	10/1/2009	10/30/2009	30	11774	\$0.1596	\$1,878.80	\$0.0870	145	37
Burr Hall	25000	10/1/2009	10/30/2009	30	13943	\$0.1596	\$2,224.91	\$0.0890	145	37
Child & Family	40000	10/1/2009	10/30/2009	30	43714	\$0.1596	\$6,975.63	\$0.1744	145	37
Constitution Hall	61300	10/1/2009	10/30/2009	30	45378	\$0.1596	\$7,241.28	\$0.1181	145	37
Crandall Hall	21600	10/1/2009	10/30/2009	30		\$0.1596			145	37
Eastern Hall	8000	10/1/2009	10/30/2009	30	11268	\$0.1596	\$1,798.05	\$0.2248	145	37
Facilities	24400	10/1/2009	10/30/2009	30	18437	\$0.1596	\$2,942.15	\$0.1206	145	37
Gelsi & Young	40000	10/1/2009	10/30/2009	30	32640	\$0.1596	\$5,208.57	\$0.1302	145	37
Goddard Hall	44200	10/1/2009	10/30/2009	30	12189	\$0.1596	\$1,945.04	\$0.0440	145	37
High Rise Apartments	71700	10/1/2009	10/30/2009	30	70854	\$0.1596	\$11,306.64	\$0.1577	145	37
Hurley Hall	34700	10/1/2009	10/30/2009	30	89687	\$0.1596	\$14,311.90	\$0.4124	145	37
J.E. Smith Library	127000	10/1/2009	10/30/2009	30	155343	\$0.1596	\$24,789.00	\$0.1952	145	37
Laurel Hall	100400	10/1/2009	10/30/2009	30	58088	\$0.1596	\$9,269.46	\$0.0923	145	37
Low Rise A	16400	10/1/2009	10/30/2009	30	24369	\$0.1596	\$3,888.73	\$0.2371	145	37
Low Rise B	10900	10/1/2009	10/30/2009	30	15467	\$0.1596	\$2,468.12	\$0.2264	145	37
Low Rise C	12100	10/1/2009	10/30/2009	30	14702	\$0.1596	\$2,346.14	\$0.1939	145	37
Low Rise D	11500	10/1/2009	10/30/2009	30	15112	\$0.1596	\$2,411.52	\$0.2097	145	37
Low Rise E	10300	10/1/2009	10/30/2009	30	15614	\$0.1596	\$2,491.55	\$0.2419	145	37
Mead Hall	115600	10/1/2009	10/30/2009	30	68348	\$0.1596	\$10,906.75	\$0.0943	145	37

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Load Shedding

Envision for BACtalk - ABSYST/ECSU

BACtalk Edit View Tools Help

ECSU - Campus Electric Demand Limiting

Previous
Props 270
Props 71001
Props 71002

Master Load Shed Status

Description	Current	Shed Prgm	Manual	Cntl Mode
Binary Shed 0-20% Dorm Outside Air	Normal	Normal	Normal	Auto
Binary Shed 20-40% Shed a Dorm	Normal	Normal	Normal	Auto
Binary Shed 40-60% Shed a Dorm	Normal	Normal	Normal	Auto
Binary Shed 60-80% Shed a Dorm	Normal	Normal	Normal	Auto
Binary Shed 80-100% Shed a Dorm	Normal	Normal	Normal	Auto
Binary Shed SSC/Gelsi Chiller	Normal	Normal	Normal	Auto

Building Demand Cycling

Description	Shed Seq. #	Shed Prgm	Override	Status
Mead, Niejadik, Hurley Halls	1 #	Normal	Auto	Normal
SRV-1 Constitution Hall	2 #	Normal	Auto	Normal
SRV-2 Nutmeg Hall	3 #	Normal	Auto	Normal
SRV-3 Laurel Hall	4 #	Normal	Auto	Normal

Demand Cycle Settings

Building Cycle Time	3600 Sec
Shed Start #	1 #
#of Building to Shed	0 #
#of Building Overrides	0 #
#of Building to Shed Now	0 #

Master Load Shed Settings

Master Ramp Signal	0 %
Start Shedding Setpoint	3100 KW
End Shedding Setpoint	3900 KW
Start Restoring Setpoint	3400 KW
End Restoring Setpoint	2900 KW

The settings on this screen allow the university to adjust the demand at which the loads are shed and the priority of what loads to shed first.

Building Energy Screens

- All residential buildings
- Major Academic buildings
- Student Center

J.E. Smith Library



Monday
January 25
10:41 AM

Current Electricity Demand

J.E. Smith Library

\$42 per hour

266 kW

Campus

3323 kW

\$530 per hour

1.7 tons CO₂ per hour

Outside Air Temperature

Current Temperature: 54 °F

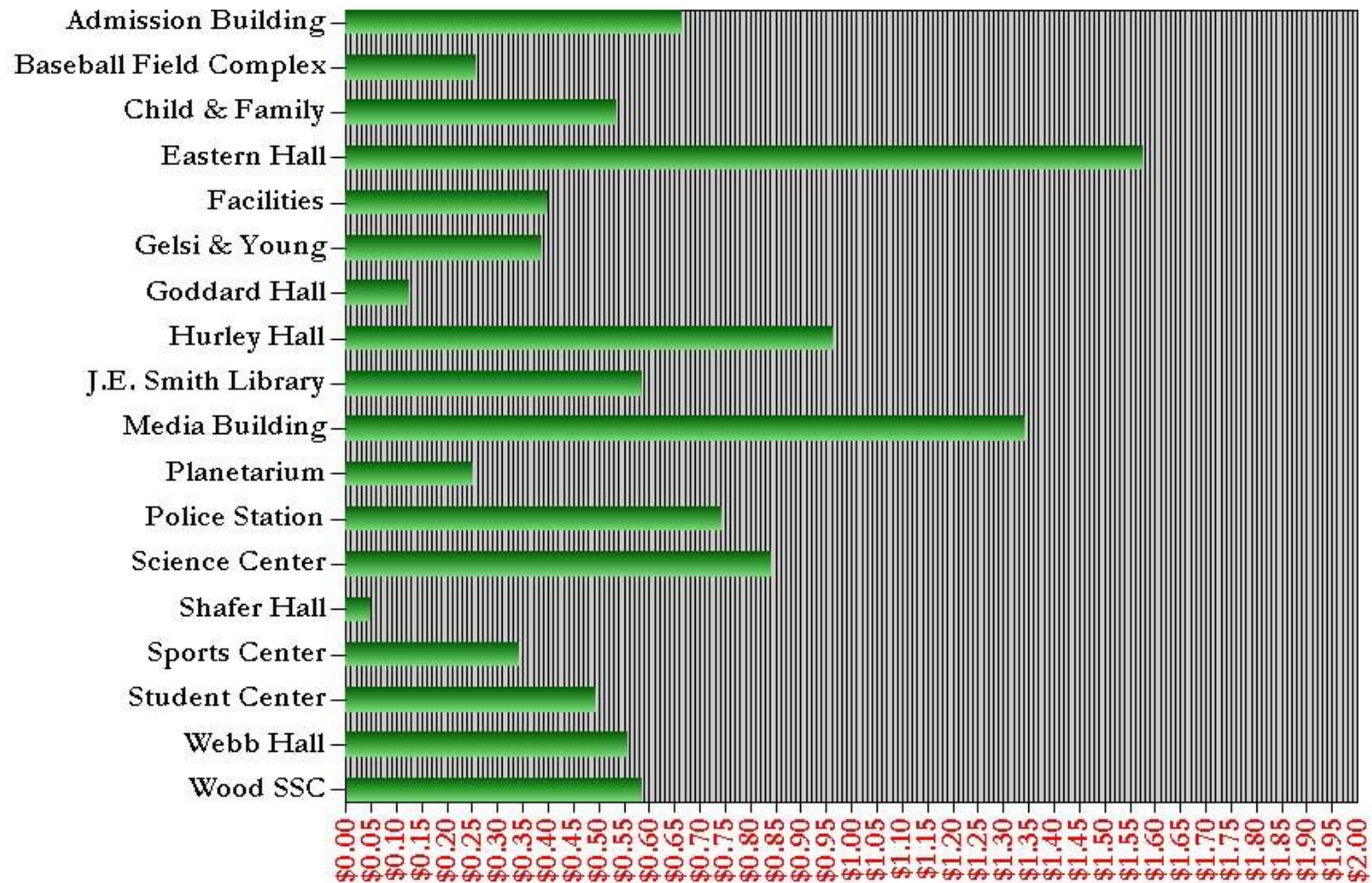
Degree Days Yesterday: 23 Heating
0 Cooling

Degree Days Year To Date: 599 Heating
0 Cooling

Comparison of Buildings

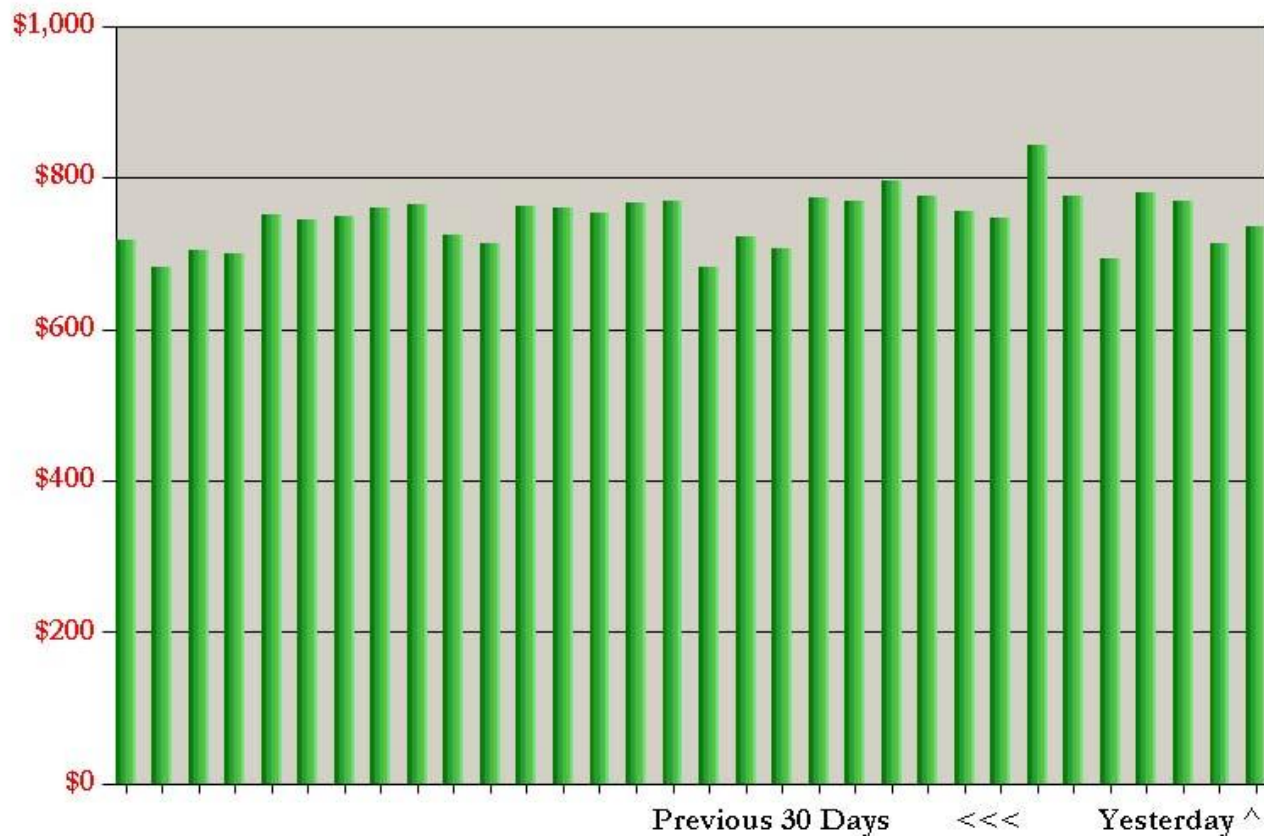
Total Electricity Cost Per SqFt

Last Month



Individual Building

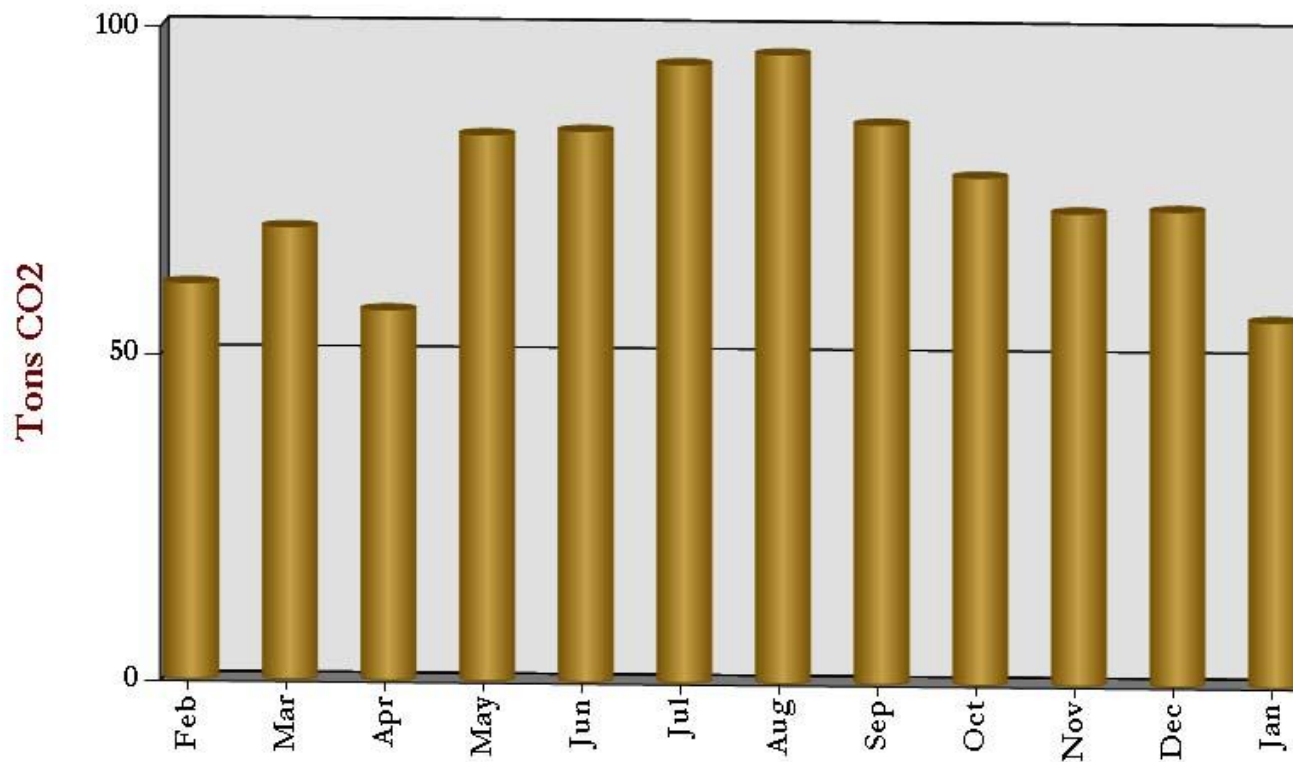
J.E. Smith Library Electrical Cost



Co2 Emissions

J.E. Smith Library CO2 Emissions

Tons of CO2 Emissions from Electrical Consumption



Residence Hall Energy Contest

Energy Contest Constitution Hall

Previous daily average from: 11/1/2008 to: 4/1/2009 was: 1321 KWH

Contest daily average from: 11/1/2009 is: 1196 KWH

Energy Contest Percent change from last semester: -9.5 %

Benefits

- Real data to analyze where to put conservation money
- Actual data for energy conservation projects – how much did we actually save by implementing a project
- Increased awareness and conservation